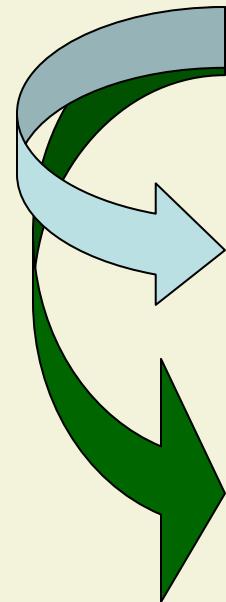


# Perspectives on Glyphosate Technologies within the North Central Cropping Systems

Chris Boerboom  
University of Wisconsin

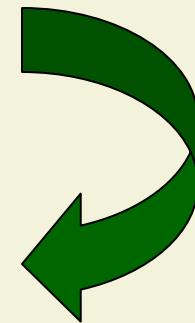


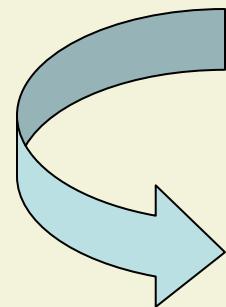
# Glyphosate Technologies

Burndown in no-till

Glyphosate-resistant crops

in-season glyphosate use

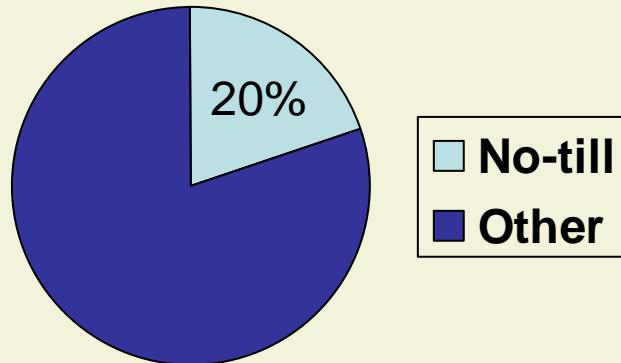




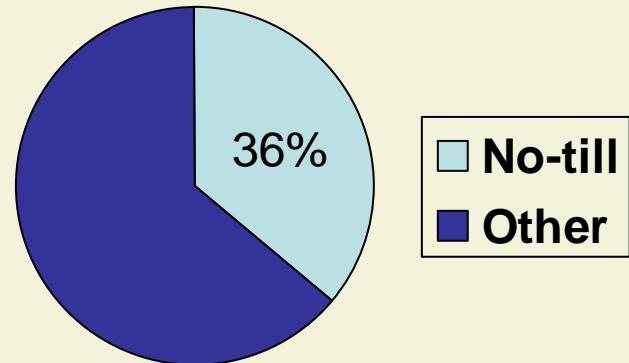
# Glyphosate Technologies

## Burndown in no-till

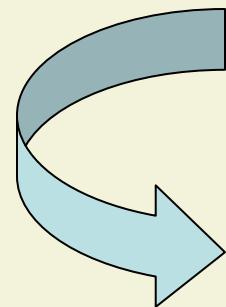
No-till Corn



No-till Soybean



CTIC 2004



# Glyphosate Technologies

Burndown in no-till

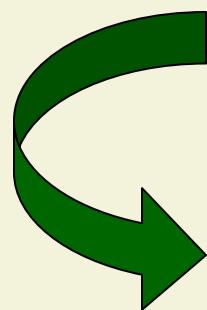
40 Million No-till Acres



105 Million Acres



**Fuel Price?**

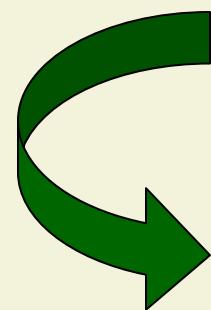


# Glyphosate Technologies

Glyphosate-resistant crops

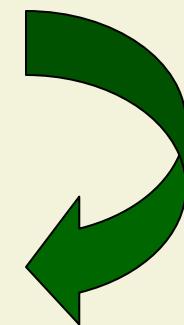
in-season glyphosate use





# Glyphosate Technologies

Glyphosate-resistant crops



in-season glyphosate use

## 2005

- @ 90% GR soybean
- @ 30% GR corn
- @ 70% GR canola

## 2006

- GR soybean?
- GR corn?
- GR canola?
- GR alfalfa?

# Glyphosate-Resistant Weeds



# NC Herbicide Resistant Weeds

|                  | ND | SD | NE | MN | IA | MO | WI | IL | MI | IN | OH | PE |
|------------------|----|----|----|----|----|----|----|----|----|----|----|----|
| Lambsquarters    |    |    |    | 1  | 1  |    | 1  | 1  | 2  | 1  | 2  | 1  |
| Pigweed spp.     | 1  |    |    | 1  |    |    | 1  | 1  | 2  | 1  | 1  | 2  |
| Kochia           | 3  | 1  |    | 1  | 1  |    | 2  | 2  |    | 2  |    |    |
| Waterhemp        |    |    | 1  |    | 2  | 2  | 1  | 3  | 1  |    | 1  |    |
| Common ragweed   |    |    |    | 1  |    | 1  | 1  | 1  | 2  | 1  | 1  |    |
| Giant ragweed    |    |    |    |    | 1  |    | 1  | 1  |    | 1  | 1  |    |
| Horseweed        |    |    |    |    |    | 1  |    |    | 2  | 1  | 2  | 1  |
| Foxtail spp.     | 1  |    |    | 2  | 2  |    | 1  |    |    |    |    | 1  |
| Shattercane      |    |    | 1  |    | 1  |    |    |    |    |    | 1  | 1  |
| Cocklebur        |    |    |    | 1  | 1  | 1  |    |    |    |    | 1  |    |
| Sunflower        |    | 1  |    |    | 1  | 1  |    |    |    |    |    |    |
| E. B. Nightshade | 1  |    |    |    |    |    | 1  | 1  |    |    |    |    |
| Wild oat         | 2  |    |    | 1  |    |    |    |    |    |    |    |    |
| Velvetleaf       |    |    |    | 1  |    |    | 1  |    |    |    |    |    |
| Wild carrot      |    |    |    |    |    |    |    |    | 1  |    | 1  |    |
| Smartweed spp.   |    |    |    |    | 1  |    |    |    |    | 1  |    |    |

7 single state species

# At the end of the Day

Reduce selection pressure from glyphosate

# Reduce Selection Pressure

## Limit use of glyphosate-based systems

- Continuous glyphosate-resistant crops?

## Diversify herbicide use

- Ideally, use more than one herbicide mode of action on all weeds every year
- Rotate glyphosate with other herbicides
- Burndown herbicide application includes 2,4-D
- Use preemergence herbicides
- Apply glyphosate in combination with other POST herbicides

# At the end of the Day

Reduce selection pressure for glyphosate

Improve weed management when glyphosate  
is used

# Capture the benefits of PRE herbicides

Controls or suppresses the initial flush of weeds

- Protects yield from early weed competition

Reduces selection pressure from glyphosate

- Fewer weeds at time of POST application

Maximizes glyphosate activity

- Weeds are smaller when POST applied



# Manage POST glyphosate applications

Make first application to young, small weeds

- Less than 6 inches tall, less than 4 weeks old

Use appropriate glyphosate rates

- 0.75 lb/a too low on tough weeds
- 1.1 to 1.5 lb/a

For some weeds, if escapes exist, make a second application to prevent seed production (not a planned program)

- 0.75 to 1.1 lbs

# Summary

1. Glyphosate technologies have value
  - no-till and in-crop
  - high intensity of use
2. Several key North Central weeds of concern
  - multiple resistance potential
3. Need to improve management
  - overall weed management
  - resistance management